April 21, 2000 Vol. 39, No. 8

Spaceport News

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Mission update

STS-101

Preparations continue toward an April 24 launch for STS-101, the third construction mission to the International Space Station. For more details, please see the story on Page 2.

Bridges, new leaders meet

KSC 2000 moves toward next round

A major element of the KSC 2000 reorganization activities is under way with the placement of the center's leadership personnel. Center Director Roy Bridges recently spoke to the newly selected GS-15 leaders at KARS Park.

"This is about leadership," Bridges said. "Get out and help us pull together to make it work. Be a model of the kind of leader you wish you always had."

All GS-15 employees were to have been notified of their new positions by April 21. Round 2 of the leadership staffing process, filling the new and supervisory GS-14 level positions, is scheduled to be completed by April 28. All high-grade GS-15 and GS-14 positions not filled through the leadership staffing will be reviewed at a later date through the normal high-grade review process.

In parallel with the leadership staffing process, the Workforce Planning Team (WPT) is placing employees at the GS-13 grade and below into their respective positions within the new organizations. Most employees will move with the their current work functions. Every KSC employee will be notified by the WPT of their position by May 2. Personnel moves are being planned for May 25-29, over the Memorial Day weekend.

In his address to the leadership staff Bridges said, "You are responsible and accountable to set up the organizations. Make sure

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Planting seeds of knowledge

MARS experiment gives students chance to pack a Shuttle payload

For elementary school teacher Betty Scott, what seemed an outlandish question has led to an invaluable opportunity.

During a parent open house a few years ago at Melbourne's Suntree Elementary School, the father of one of Scott's students spoke to her fourth-grade class about his work at KSC. When Lee Maull finished his talk and took questions, Scott half-seriously tossed out one that she considered entirely far-fetched: Would it be possible for her class to send a science project into space?

The man said it might be possible and gave her a card bearing the name of Dennis Chamberland, a bioengineer involved in the KSC Space Life Sciences Outreach Group. Despite that encouragement, Scott remained so doubtful about the idea that she didn't place the call.

Fortunately for Scott and her students, Chamberland wound up with the teacher's name and called her himself. The result is that when the Space Shuttle Atlantis launches on mission STS-101, Scott's science class will supply a small part of the cargo in the MARS ("Mission to America's Remarkable Students") Experiment.

To hear the buoyant Scott discuss it, one might think she herself will be onboard Atlantis.

"It's just the most exciting thing for a teacher, and for the kids, too," Scott said in her rapid-fire, effusive manner. "This is something they're

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Cryogenics lab opens

KSC Director Roy Bridges strikes a hammer to a cryogenically frozen ribbon during a ceremony April 14 to unveil the Cryogenics Testbed Laboratory.The new research facilities include the Cryogenics Test Laboratory, Liquid Nitrogen Flow Test Area, Hazardous Test Area and the Launch Equipment Test Facility. A large gathering of local and state government and industry officials attended the dedication ceremony. The project represents a key milestone in expanding KSC's development capabilities.

Replacement of unit keeps mission on track

The Space Shuttle Atlantis remains on schedule for an April 24 launch for mission STS-101.

During standard testing at Launch Pad 39A, technicians detected a faulty power drive unit (PDU) for Atlantis' rudder/speed brake. Launch managers decided to replace the unit at the pad, and the work was completed on April 13.

Following that replacement work, the Rotating Service Structure was moved back into position around the Shuttle. Workers then reestablished access to the replaced PDU and reconnected the hydraulic lines.

Because of the PDU change-out, technicians conducted a full hydraulic system test for Shuttle main engines and aerosurfaces. Subsequent data review will confirm the system's readiness for flight.

Concurrent with other Shuttle processing efforts, technicians replaced an electronic control box located in the orbiter's aft compartment. The box amplifies the electrical signal transmitted from a multiplexer/demultiplexer to the orbiter's aerosurfaces. Technicians also replaced a leaky hydraulic fluid discharge hose on the main pump for auxiliary power unit.

With launch scheduled for about 4:15 p.m. on April 24, managers plan to begin the launch countdown at 7 p.m. on April 21. Landing is scheduled for May 4 at about 12:51 p.m.

STS-101 prepares the International Space Station (ISS) for the arrival later this year of the Russian-made Zvezda service module. The second Shuttle docking with the ISS will include one space walk.

Students ...

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going to remember for the rest of their lives. It's motivated my students to get more interested in science."

The manifest for STS-101 includes a Get Away Special Canister, or "gascan," a special container designed to carry small, autonomous payloads. The container will transport the MARS Payload, which consists of 20 tubes filled with materials chosen by students from the United States and Canada — including Scott's class.

The MARS experiment arose after Goddard Spaceflight Center's Small Shuttle Payloads office notified the KSC Space Life Sciences Outreach Group of an opportunity to fly a Get Away Special experiment on the Space Shuttle. Following approval from NASA Headquarters for the project, each school was invited to design a payload that dealt specifically with Space Life Sciences.

"The idea was that the schools would have the freedom to pick whatever Space Life Sciences experiment they wanted, as long as it fit inside the constraints of the tube and our safety experts agreed it was safe to fly," said Chamberland of the Biomedical Office.

The KSC Space Life Sciences Outreach group has sponsored occasional student experiments on Space Shuttle flights. The KSC group sponsored the Seeds II experiment on STS-90 and participated in the Seeds I flight on the Long Duration Exposure Facility.

The MARS payload's plastic tubes, each approximately the size of a portable coffee container, were loaded and carefully sealed in a clean environment at Kennedy Space Center. Technicians then fitted the tubes into the "gascan" cylinder, which was bolted to an interior wall of the Space Shuttle Atlantis' payload bay. MARS will fly as a passive payload, one that is not manipulated during flight and doesn't have any automatic functions.

The 20 schools — ranging from elementary to high school — worked independently on their projects. Most decided to fill their tubes with seeds, though the types vary widely and include sunflower, watermelon, loquat, radish, green bean, soy bean, turnip and poppy. Other materials also were placed into the tubes: freeze-dried bacteria, freeze-dried brine shrimp, plastic samples, soil and yeast.

Following nearly 10 days in space aboard Atlantis, the tubes will be removed from their canister in a controlled environment at KSC's Orbiter Processing Facility and returned to the respective schools. Supervising teachers will then use the materials for classroom investigations and projects.

In deciding how to fill its allotted space, Scott asked each of her students to discuss the matter with their parents. The students then made classroom presentations, pitching their ideas about materials to put in the tube. A classroom vote determined the winning combination: popcorn kernels, yeast, watermelon seeds, sunflower seeds and the seeds of three kinds of trees — weeping sand palm, loquat (Japanese plum) and tabebuia.

A NASA technician seals one of the tubes containing students experiments that will be carried aboard the Space Shuttle Atlantis.

Scott said her students will plant the seeds, comparing their growth to that of seeds stored underwater and others treated normally. They will plant the palm, loquat and tabebuia seeds around a newly constructed pavilion at the school in hopes of producing "MARS trees" that will inspire future students.

The Suntree class has been involved in the MARS program for several years, participating in experiments and designing its own MARS T-shirts each year. Scott's students grew tomato plants from seeds that were used in a previous experiment.

"The first thing they do when they come in every day is go and look at those tomato plants," she said.

The lag time between planning and launch in the space program creates a sense of continuity for Scott's school. The students who designed the current payload are now sixth-graders and no longer in Scott's class, but she tells them, "You're always a MARS student."

In addition to Suntree Elementary, seven of the participating schools are from Central Florida: Longleaf Elementary (Melbourne), Cocoa Beach Christian School, Golfview Elementary (Rockledge), Oak Park Elementary (Titusville), Teague Middle School (Altamonte Springs), Southwest Junior High (Palm Bay) and Brevard Homeschool Co-Op (Cocoa). The remainder include schools from Florida, Indiana, Oklahoma, Michigan, California and Canada.

Crew counts on preparation

The crew of STS-101 participated in Terminal Countdown Demonstration Test (TCDT) activities at KSC on April 6-7. Clockwise from top: STS-101 Pilot Scott J. “Doc” Horowitz shows his excitement as he takes his seat inside Space Shuttle Atlantis for a simulated launch countdown. ... At the 195-foot level of the Fixed Service Structure on Launch Pad 39A, the crew receives instruction in making an emergency exit with a slidewire basket. Seen from left are Mission Specialists Yuri Usachev and Susan Helms; Commander James Halsell; Mission Specialists James Voss, Mary Ellen Weber and Jeffrey Williams (standing behind), Horowitz. ... Settled in their seats inside Space Shuttle Atlantis are (left to right) a trio of mission specialists — Russian cosmonaut Usachev, Helms and Voss. ... During a break in TCDT activities, the STS-101 crew takes time for a photo at Launch Pad 39A. The white solid rocket booster and external tank attached to Space Shuttle Atlantis can be seen behind them.

Scenes from a picnic

The KSC All-American Picnic, held on April 15 at KARS Park, provided a variety of entertainment for approximately 5,000 employees. Clockwise from top left: Take One, an Asian dance ensemble, performs with oversized drums. ... Children await the balloon creations of a man whose hat identifies him as “Press.” ... Center Director Roy Bridges rides aboard a 1938 Ford fire engine during the picnic’s opening ceremonies. A group of astronauts occupies the aft compartment of the vehicle. ... Children find something to keep them occupied at the park’s playground. ... A KSC employee and his youngster spend some time with a space-suited host.

More scenes from the KSC All-American Picnic: In the photo above, a member of Thunderhawk Big Cat Rescue brings out one of its great cats for an audience during a "Wildlife Encounter." The Native American, non-profit group based in Brevard County is dedicated to the preservation of large cats. At right, astronauts and former KSC employees Joan Higginbotham (left) and Kay Hire get acquainted with some potential future space explorers.

Administrative professionals get their due with breakfast

April 24-28 is Administrative Professionals Week.

In recognition of the occasion, the NASA Executive Secretarial Council will host an an "Administrative Professionals Breakfast" on Wednesday, April 26.

All NASA/KSC secretaries, clerical personnel and their bosses are invited. The buffet breakfast will be held from 8:30-10 a.m. in the Mission Briefing Room (Operations and Checkout Building).

James Jennings, deputy director for business operations, will give a 10-minute address. Following breakfast, there will be a talk by the guest motivational speaker — Marilyn Sherman, co-author of the book *Chicken Soup for the Soul*.

The points of contact for tickets are Diane Carillion, 867-6565; Mary Conklin, 867-4545; Sue Gross, 867-4343; Maxie Johnson, 867-8794; Penny Myers, 867-2386; and Beth Smith, 867-7246.

Apollo 16 astronaut tries out a new seat

Almost exactly 28 years after launching on Apollo 16, former astronaut Charles Duke sits in the cockpit of the Space Shuttle Endeavour. Duke, who contributed to the placement of instruments in the original Space Shuttle cockpit, had never been inside an orbiter before his recent trip to KSC. Duke now can say that he has been in the same seat as former colleague John Young, who flew on the first Space Shuttle mission in 1981. Duke and Young explored the surface of the moon together in a lunar rover as part of Apollo 16, which launched on April 16, 1972. Duke, 64, now lives in Texas.

Shriver leaves KSC for industry job

Loren J. Shriver, a former Space Shuttle astronaut who became one of KSC's highest-ranking executives, has retired from NASA to take a position in private industry.

Shriver, 56, began work at KSC as the Space Shuttle Program Manager for Launch Integration in 1993. He had served as Deputy Director for Launch and Payload Processing since 1997. Shriver has been named deputy program manager of operations for United Space Alliance, NASA's prime contractor for the Space Shuttle program.

"I will really miss Loren. He provided extraordinary leadership in his broad areas of responsibility," KSC Director Roy Bridges said. "All of us at KSC wish him well and look forward to seeing him often. He will bring tremendous knowledge and capabilities to USA's Shuttle program management team."

In his capacity as a deputy director, Shriver was responsible for executive leadership, strategic planning and direction for KSC's Agency-assigned responsibilities as the Center of Excellence for

Loren Shriver

Launch and Payload Processing Systems. Those included payload carriers, Space Shuttle processing and launch and processing of payloads that included International Space Station elements, as well as responsibilities assigned to the Center for expendable launch vehicles.

"I had a great tour at KSC and learned an awful lot about the operations that happen down here," Shriver said. "There is nothing like being here and experiencing the actual ground processing taking place. I will be able to apply all that I learned in my new job. I'll miss everybody."

As Space Shuttle program manager for launch integration, Shriver was responsible for final Shuttle preparation, mission execution, and return of the orbiter to Kennedy following landings at Edwards Air Force Base, Calif. From October 1992, he served as deputy chief of the astronaut office at the Johnson Space Center in Houston.

After joining the astronaut program in 1978, Shriver flew on three Space Shuttle missions. He served as pilot for STS-51C in 1985, and fulfilled the role of commander on two subsequent missions, STS-31 in 1990 and STS-46 in 1992. His first flight was a Department of Defense mission that included deployment of a modified Inertial Upper Stage (IUS) vehicle from the Space Shuttle's payload bay. The STS-31 mission was noteworthy for deploying the Hubble Space Telescope, and STS-46 released the European Retrievable Carrier (EURECA) satellite into space.

Before joining the astronaut program, Shriver had a distinguised career in the Air Force. The Iowa native earned a Bachelor of Science degree in aeronautical engineering from the Air Force Academy in 1967 and followed that with a master of science degree in astronautical engineering from Purdue University in 1968.

During a 12-year career as a fighter pilot, he accumulated more than 6,200 hours in high-performance jets.

Shriver has received many notable awards, including the United States Air Force Distinguished Flying Cross, the Defense Superior Service Medal, the Defense Meritorious Service Medal, the Air Force Meritorious Service Medal, the Air Force Commendation Medal, the NASA Distinguished Service Medal, the NASA Outstanding Leadership Medal, the NASA Space Flight Medal (three times), the American Astronautical Society 1990 Flight Achievement Award and the American Institute of Aeronautics and Astronautics Haley Space Flight Award for 1990.

KSC 2000 ...

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you are committed to the organization and people. Nurture, coach and mentor to help them to rise to their full potential. Let go of the people and let them expand their horizons and have a variety of experiences. Be conscious of the reliance on each other and value teamwork and partnerships." He emphasized that safety is the number one priority at KSC.

Bridges told the Center leadership to continue using KSC's Roadmap and objectives in making KSC successful. He encouraged the attendees to hold on the passion for success and the strong character and values that have made KSC so successful. He also advised the team to assess the products delivered to their internal/external customers and measure how well they are serving the customer.

"Grasp it so we can move ahead as a high performance team," Bridges said. "We must measure so we know what to improve. We have lots to learn about our customer. Who are they and how do we deliver the best possible service."

James Jennings, deputy director for business operations, said, "We have 160 new employees coming to KSC. They are depending on us to make it work.

"We need to rely on each other to make sure we all do our part and the whole organization will work well. I look forward to working with each of you."

Employees can learn about the new organization during an employee "Open House" tentatively planned on May 8 from 8:30 a.m. to noon in the Operations and Checkout Building Mission Briefing Room. In trade show-type fashion, directors will be on hand to discuss their new organization's roles and responsibilities, and answer questions.

KSC Director Roy Bridges and Deputy Director for Business Operations James Jennings, right, meet with employees to discuss the recent appointments of high-level personnel as part of the ongoing KSC 2000 reorganization.

Assuming final approval is received from NASA Headquarters, all personnel changes will be effective May 7. On May 9, Bridges is scheduled to visit each directorate to emphasize the importance of the employees' new role in deploying the KSC 2000 vision. In conjunction with his visit, each director will share insight into the new organization and answer questions. That afternoon, civil service employees are invited to a KSC 2000 kickoff celebration at KARS II from 3-5 p.m. Refreshments will be provided.

Hubble's candle bright on 10th birthday

A spectacular morning launch of the Space Shuttle Discovery 10 years ago, on April 24, 1990, ushered in a new golden age of astronomy. The payload in Discovery's cargo bay, NASA's Hubble Space Telescope, was released by the crew into Earth orbit the next day and the Universe hasn't looked the same since.

Even though initially impaired by a flaw in its main mirror (it was expertly made but to the wrong "prescription," causing its images to be blurred), Hubble's position above the distortion of Earth's atmosphere enabled it to begin making major discoveries even before astronauts repaired it in 1993. When corrective optics were installed during that dramatic first servicing mission, the Universe suddenly snapped into sharp focus, and there followed a flood of spectacular images and discoveries which have forever changed how we view the cosmos.

"Hubble's rate of discovery is simply unprecedented for any single observatory," said Dr. Ed Weiler, associate administrator for Space Science, NASA Headquarters, Washington, D.C., who has been associated with the Hubble program since 1978. "But what may be even more important in the long term is what Hubble has given to just about everyone on Earth.

The U.S. Postal Service has released a series of stamps commemorating the 10th anniversary of the Hubble Space Telescope. Hubble was launched from KSC aboard the Space Shuttle Discovery on April 24, 1990.

Hubble's spectacular images and discoveries of black holes, colliding galaxies and bizarre objects at the edge of the Universe have been brought into millions of homes by newspapers, television and the Internet."

In its first 10 years, the 12.5-ton Earth-orbiting Hubble has studied 13,670 objects, has made 271,000 individual observations, and has returned 3.5 terabytes of data, which have been archived as a scientific treasure trove for future generations of astronomers. Its rapid-fire scientific achievements have resulted in more than 2,651 scientific papers.

"Not since Galileo aimed a small 30-power telescope into the night sky in 1609 has humanity's vision of the Universe been so revolutionized in such a short time span by a single instrument," said Dr. David Leckrone, Hubble Project Scientist at NASA's Goddard Space Flight Center, Greenbelt, Md. "The Hubble Space Telescope has seen farther and more clearly than any visible-light telescope before it, and has revolutionized the science of astronomy. It already has earned a place as one of the wonders of the modern world."

Hubble's photographic hall of fame includes the deepest view ever of the Universe in visible light; a peek into the environs of supermassive galactic black holes; the majestic birth of stars in monstrous stellar clouds; planetary systems forming around other stars; extraordinary arcs, shells, and ribbons of glowing gas sculpted by the deaths of ordinary stars; mega-megaton blasts produced by the impact of a comet into the cloud tops of Jupiter; the surface of mysterious Pluto; and galaxies at the edge of space and time.

Hubble was conceived to tackle scientific goals that could be accomplished only by an observatory in space. Its mission is to spend 20 years probing the farthest and faintest reaches of the cosmos. Crucial to fulfilling this objective is a series of on-orbit servicing missions by Space Shuttle astronauts. The third of those was performed last December.

These missions extended Hubble's scientific power with new instruments; modernized its systems with new technology; and performed critical maintenance and repairs of its optics, solar arrays, gyros and other components. As a result, Hubble is a far more capable observatory than when it was launched.

Happy about history

Sally Putnam Chapman, second from right, receives a commemorative plaque after her appearance as guest speaker at the Women's History Month luncheon in the Saturn V Center. Chapman, author of the *book Whistled Like a Bird*, entertained the audience of about 150 people with stories of the life of her grandmother, Dorothy Putnam, an avid naturalist, socialite and explorer; her step-grandmother, the famous aviator Amelia Earhart; and her grandfather, well-known publisher and adventurer George Putnam. Joining her, from left, are Liz Wise, Federal Women's Program Coordinator; Kenny Aguilar, director of the Equal Opportunity Program Office; Tracy Anderson, Federal Women's Program Working Group chairperson; and Jean Rhodes, Federal Women's Program Manager for KSC.

Free tags solve any identity crisis

NASA and Cape Canaveral Air Force Station rules require that all briefcases, gym bags, equipment bags, backpacks and packages must have an identification tag. As a service to all employees, J-BOSC Security Services is issuing free ID tags.

Drop by the following locations to get a tag for whatever you might be carrying around:

• KSC Headquarters Building, VRC Badging Office, Room 1470

• Vehicle Assembly Building Gate F Badging Station

• Pass and ID Station 1 on Phillips Parkway near the CCAFS South Gate

• Pass and ID Station 3 on NASA Causeway near Gate 3

Making progress

A recent aerial photo shows the continued progress in construction of the remote launch vehicle hangar., located at the south end of the Shuttle Landing Facility. Next to the multi-purpose RLV hangar are facilities for related ground support equipment and administrative/ technical support. At the bottom of the photo is the tow-way road which connects the runway with the Orbiter Processing Facility.

Survey: NASA workers among most satisfied in government

According to a newly published government survey, NASA employees enjoy a greater level of job satisfaction than most other federal workers. The National Partnership for Reinventing Government (NPR) Employee Survey showed NASA employees gave the agency the highest favorable ratings in 14 out of 32 categories.

NASA's highest favorable ratings were in the areas of employee job satisfaction, customer orientation and placing reinvention as a priority.

NASA's employees pointed to several factors for the high ratings: employee involvement in decisions that directly affect them; recognition for creativity and innovation and for doing a good job; working as a team; and getting quality results.

NASA also finished with the highest favorable ratings on questions about managers communicating the organization's missions, vision, and values; employee participation in cross-functional teams; and supervisors/team leaders understanding and supporting employees' family and personal responsibilities.

"I am incredibly proud of these results," NASA Administrator Daniel S. Goldin said. "They represent a strong statement of the top-to-bottom excellence of the NASA team.

"NASA strives to uphold core values related to people, excellence and integrity," Goldin added. "Our greatest strength is our workforce."

The 1999 Employee Survey is part of a program administered by the National Partnership for Reinventing Government and the Office of Personal Management to study Federal workers and to gain an understanding of employee perspectives on reinvention and workplace issues.

You can find additional survey information on the Internet at:

www.nasa.gov/newsinfo/survey.html

Bookman earns Fame for marketing efforts

Pamela Bookman, a Kennedy Space Center employee, recently joined the United States Space Foundation's Space Technology Hall of Fame.

Bookman, marketing program manager in KSC's Technology Programs and Commercialization Office, was inducted for her role in helping a private company market a product originally developed for the space program. Sun Coast Chemicals of Daytona Beach, Fla., sells many products based on X-1R Crawler Track Lube, an advanced lubricant used for the giant crawler-transporters that deliver the Space Shuttle to the launch pad.

"That's what we try to do in our office — transfer technology and try to help companies be successful in their ventures," Bookman said. "It's a win-win situation for NASA as well as for the company."

Bookman was officially inducted on April 6 at the 16th National Space Symposium in Colorado Springs, Colo. Joining her were Richard H. Beck and Daniel A. Drake, KSC employees of NASA contractor United Space Alliance and the developers of the lubricant.

The Hall of Fame honors innovators who have transformed technology originally developed for the space program into commercial products. Bookman's induction marked the first time since 1990 that a KSC employee has been recognized by the foundation.

Beck and Drake helped formulate a lubricant used on the pins connecting the one-ton tractor tread belts of the crawler, which itself weighs six million pounds. The crawler, designed for the Apollo program in the 1960s, carries the Space Shuttle three miles from the Vehicle Assembly Building to the launch pad.

Pamela Bookman

During that trek, lubricants must withstand pressures as high as 12 million pounds, the combined weight of the Shuttle and its Mobile Launcher Platform. The lubrication is used to reduce wear and noise and to lengthen component life.

The lubricant, biodegradable and non-toxic, arose from an Environmental Protection Agency finding that the previous lubricant was environmentally unacceptable. The resulting product, X-1R Crawler Track Lube, has been featured in NASA's "Spinoff" magazine as an example of technology transfer to the private sector.

KSC received a commemorative plaque in recognition of Bookman's induction.

"There's a lot of competition from across the country, so we're very pleased to win it," Bookman said.

John F. Kennedy Space Center

Spaceport News

Spaceport News is an official publication of the Kennedy Space Center and is published on alternate Fridays by the Public Affairs Office in the interest of KSC civil service and contractor employees.

Contributions are welcome and should be submitted two weeks before publication to the Media Services Branch, AB-F1. E-mail submissions can be sent to Gary.White-4@ksc.nasa.gov

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Editorial support provided by InDyne Inc. Writers Group.
NASA at KSC is located on the Internet at *http://www.ksc.nasa.gov*

USGPO: 533-128/00030